

App. Serial No.: 10/044,398

Atty. Docket No.: 0026-011

REMARKS

These remarks are in response to the Office Action dated January 14, 2004, which has a shortened statutory period for response set to expire April 14, 2004. A one-month extension of time, to expire May 14, 2004, is requested in a petition filed herewith.

Claims

Claims 1-30 are pending in the above-identified application. Claims 13-21 are canceled. Claims 1-12 and 22-30 are rejected over prior art. Claims 4-6, 9, 12, and 25-26 are amended and Claims 31-46 are added. Claims 1-3, 7-8, 10-11, 22-24 and 27-30 remain as filed. Reconsideration is requested.

Rejections Under 35 U.S.C. § 103

Claims 1-11, 22-25, 27, and 29 are rejected under 35 U.S.C. § 103 as being unpatentable over Langeman (USPN 5,388,761). The Examiner writes:

The patent to Langeman discloses an apparatus for proportioning a component A and a component B, comprising:

- a flow measurement apparatus 32B for measuring the flow rate of component B based on the speed of the motor driving the pump and thus 32B is a flow sensor as recited in claim 9;
- a control unit 32A for calculating the quantity of component A to be added to the component B based on at least in part on the flow rate of B;
- a flow control device including motor 28B and pump 24B for metering the quantity of component B to component A;
- a second flow measurement apparatus for measuring the flow of B as a part of 32A;
- wherein the control unit receives input from the flow measurement apparatus and the control unit controls the flow control device as recited in Claim 3.

The flow of component B varies during the operation of the apparatus as recited in Claim 7.

Applicant respectfully traverses.

M.P.E.P. §2143 sets forth the requirements of a *prima facie* case of obviousness:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the

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reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

Claim 1 recites:

1. An apparatus for proportioning a chemical with a solvent, comprising:
 - a flow measurement apparatus for measuring the flow rate of the solvent;
 - a control unit for calculating the quantity of chemical to be added to the solvent based at least in part on the flow rate of the solvent; and
 - a flow control device for metering the quantity of the chemical added to the solvent. (emphasis added)

Claim 1 recites "a flow measurement apparatus for measuring the flow rate of the solvent." Langeman does not teach or suggest such a limitation. It is the Examiner's position that Langeman discloses "a flow measurement apparatus 32B for measuring the flow rate of component B based on the speed of the motor driving the pump." However, Applicant respectfully asserts that measuring "the speed of the motor driving the pump" to determine the flow rate of a liquid as disclosed by Langeman is different from "measuring the flow rate of the solvent," as recited by Claim 1.

For example, in Langeman the speed sensing means 30A and 30B do not measure the flow rate of the liquid flowing into the pumps 24A and 24B. Instead, they measure the speeds of motors 28A and 28B and convey this information to computers 32A and 32B. At best, these speeds can be used to calculate the amount of fluid that should be flowing through pipes 48A and 48B. In contrast, the flow measurement apparatus of the present invention (e.g., flow sensor 118) actually measures the flow rate of the solvent.

This is an important difference between the present invention and the prior art. For example, if either of the tanks 22A or 22B of the cited reference became empty, no liquid would be flowing through pipes 48A and 48B, even though pumps 28A and 28B were operating at the proper speed. As a result, the system of Langeman would deliver a mixture having an improper ratio of chemicals, either pure component A or pure component B depending on which tank went empty. This is precisely one of the problems of the prior art that the present invention seeks to

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overcome, wasting chemicals. According to the present invention, if the chemical supply tank 116 runs dry, chemical flow sensor 118 would detect that no solvent was flowing through the conduit, and the delivery of chemical/soap would also be halted.

Because the cited reference does not teach or suggest "a flow measurement apparatus for measuring the flow rate of the solvent," as recited in Claim 1, no prima facie case of obviousness is established with respect to Claim 1.

Further, Applicant respectfully asserts that modifying the cited reference with a flow measurement apparatus would be non-obvious for several other reasons.

First, the cited reference clearly teaches away from the use of flow sensing devices for measuring fluid flow at Column 11, Lines 26-34, which provides:

It is advantageous to control pump 24 output by monitoring and controlling the speed of motor 28 driving it, rather than to monitor output using a flow sensing device downstream of the pump 24. Not only is a flow meter one more possible source of error; but it also involves a greater lag time between the detection of a condition requiring pump/motor speed adjustment and the adjustment being made than does speed sensing means 30 of the present invention.

Thus, Langeman expressly recognizes the difference between monitoring pump motor speed and the use of a flow measurement apparatus. Moreover, Langeman expressly discourages the use of a flow measurement apparatus as recited in Claim 1. Therefore, there is no suggestion or motivation for modifying the cited reference to obtain Applicant's claimed invention, and no prima facie case of obviousness can be established with respect to Claim 1. Modifying or interpreting Langeman contrary to its express teachings is clearly improper.

Claims 2-6, and 8-11 depend either directly or indirectly from Claim 1 and are distinguished from the cited prior art for at least the reasons provided above with respect to amended Claim 1.

Claims 4-6

With respect to Claim 4-6, the Examiner writes that "the various substances as recited in claims 4-6 are statements or intended use, since it has been held the a recitation with respect to

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the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations."

Claims 4-6 are amended to positively claim either the solvent or the chemical as components of the apparatus. As claimed, the solvent and/or the chemical comprise physical elements of the apparatus, and not an intended use. Applicant asserts that amended Claims 4-6 distinguish over the cited reference, because the cited reference does not teach or suggest using water as a solvent and/or a cleaning solution/soap as a mixed component.

Claim 8

With respect to Claim 8, the Examiner writes that "it would be obvious to one having ordinary skill in the art that the flow rate would vary according to the quantity of a plurality of spray wands in operation since the required flow rate would increase or decrease depending on the wands in operation."

Applicant respectfully traverses. Langeman teaches that any change in the speed of delivery out of spray gun 26 is responsive to a change in computer settings altered by an operator or to a change in the position of a manually controlled potentiometer 82 on remote control device 34 (see Col. 9, Lines 15-27, Col. 11, Lines 2-9). It is unclear to Applicant as to how the flow rate could be varied "according to the quantity of a plurality of spray wands which are in operation at any given time," as recited by Claim 8, without substantial reprogramming of computers 32A and 32B and without measuring the flow rate of at least one of the liquids flowing through one of delivery lines 48A and 48B.

Therefore, because Langeman does not teach every limitation of Claim 8, nor provide any motivation or suggestion for modification to obtain the claimed invention, no prima facie case of obviousness is established with respect to Claim 8.

Claim 9

Claim 9 is amended to correct a minor clerical error such that the terminology used in the claim corresponds with the terminology used in Claim 1.

With respect to Claim 9, the Examiner writes that Langeman discloses that "a flow measurement apparatus 32B ... is a flow sensor as recited by Claim 9." Applicant respectfully traverses. For the reasons given above with respect to Claim 1, Applicant respectfully asserts

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that the computer 32B of Langeman cannot be considered an equivalent to the flow sensor of Applicant's claimed invention. As indicated above, Langeman expressly recognizes this distinction, and such an interpretation would be clearly contrary to the teachings of the reference, which must be considered as a whole. Therefore, no prima facie case of obviousness is established with respect to Claim 9.

Claim 22

Claim 22 recites (in part) "water flow measurement means for measuring the flow of water," and therefore, must be interpreted according to the provisions of 35 U.S.C. § 112, Paragraph 6, which provides:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

M.P.E.P. § 2106 sets forth the procedure for examination of means plus function claims, and provides:

Where means plus function language is used to define the characteristics of a machine or manufacture invention, claim limitations must be interpreted to read only on the structures or materials disclosed in the specification and "equivalents thereof." (Two *en blanc* decisions of the Federal Circuit have made clear that the Office is to interpret means plus function language according to 35 U.S.C. 112, sixth paragraph. In the first, *In re Donaldson*, 16 F.3d 1189, 1193, 29 USPQ2d 1845, 1848 (Fed. Cir. 1994), the court held:

The plain and unambiguous meaning of paragraph six is that one construing means-plus-function language in a claim must look to the specification and interpret that language in light of the corresponding structure, material, or acts described therein, and equivalents thereof, to the extent that the specification provides such disclosure. Paragraph six does not state or even suggest that the PTO is exempt from this mandate, and there is no legislative history indicating that Congress intended that the PTO should be. Thus,

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this court must accept the plain and precise language of Paragraph six.

As described above with respect to Claim 1, nothing in the cited reference can be fairly characterized as an equivalent to the "water flow measurement means for measuring the flow of water," recited by Claim 22. For example, Applicant's specification discloses flow sensors to measure the flow of solvent flowing from a chemical storage tank. In contrast, the cited reference discloses computers 32A and 32B that receive signals from speed sensing means 30A and 30B for measuring the speed of motors 28A and 28B. Accordingly, Claim 22 when properly interpreted according to 35 U.S.C. § 112, Paragraph 6 does not read on the structure of the cited reference. The speed sensing means of the cited reference are simply not structural equivalents of the means for measuring water flow disclosed in Applicants specification. Because the cited reference does not disclose every element of the present invention, no prima facie case of obviousness is established with respect to Claim 22.

Claims 23-30 depend either directly or indirectly from Claim 22 and are therefore distinguished from the prior art for at least the same reasons as Claim 22.

Claims 24 and 25

Claim 25 is amended to correct a dependency error. Claim 25 should have depended from Claim 23, however was inadvertently indicated to depend from Claim 23.

In addition, for the same reasons given above with respect to Claims 1 and 9, Langeman teaches away from the use of flow sensors as recited Claims 24 and 25. Therefore, no prima facie case of obviousness is established with respect to Claim 24 or Claim 25.

Claims 12 and 26

Claims 12 and 26 are rejected under 35 U.S.C. § 103 as being unpatentable over Langeman in view of Kollmai (USPN 3,651,830). The Examiner writes:

The patent to Langeman discloses the instant invention except for a solenoid valve. The patent to Kollmai teaches a car wash apparatus comprising a solenoid valve to discharge liquids. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device of Langeman by providing a solenoid valve as taught by Kollmai, since solenoid valves are known precise flow control.

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Applicant respectfully traverses.

First, Applicant would like to point out that there is no suggestion or motivation provided in either Langeman or Kollmai to incorporate a solenoid valve into the apparatus of Langeman. In particular, it is a central aspect of Langeman that proportioning of the volume ratio of the chemical components is controlled by controlling the speed of motors 28A and 28B. In any case, replacing the motor speed control of Langeman with proportioning solenoids would change the principle of operation of Langeman, which is prohibited. (See e.g., M.P.E.P. §2143.01)

Further, there is no indication that the solenoid valves of Kollmai have proportioning capabilities. Contrary to Kollmai, the solenoid valve(s) used in the present invention are proportioning solenoid valves, and are therefore able to meter the flow of a fluid. To clarify this distinction, Claims 12 and 26 are amended to recite "a proportioning solenoid valve." Because the cited references, either alone or in combination, do not teach this limitation of amended Claims 12 and 26, no prima facie case of obviousness is established with respect to Claim 12 or Claim 26.

Claims 28 and 30

Claims 28 and 30 are rejected under 35 U.S.C. § 103 as being unpatentable over Langeman in view of Lane et al. (USPN 4,209,343). The Examiner writes:

The patent to Langeman discloses the instant invention except for the pump being an air driven pump. The patent to Lane et al. teaches a washing device comprising an air driven pump 15 to atomize a solution. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device of Langeman by replacing the pump of Langeman with an air driven pump as taught by Lane et al. to atomize chemical or water.

Applicant respectfully traverses.

Initially, Applicant would like to point out that Lane et al. do not disclose an "air driven pump," but rather an air pump which is powered by electrical means. For example, see Column 4, Lines 61-65 and Column 5, Lines 22-24. Therefore, because the cited references, either alone or in combination, do not teach or suggest every element of the claimed invention, no prima facie case of obviousness can be established with respect to Claims 28 and 30.

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Applicant also respectfully asserts that there would be no motivation to modify the apparatus of Langeman with an air pump, even if Lane et al. disclosed one. Most importantly, the pumps 24A, 24B of Langeman are gear driven, from which they derive their accuracy in metering fluid (see Col. 7, Lines 28-34).

Therefore, because neither of the cited references provide any motivation for modification to combine the references to obtain the claimed invention, no prima facie case of obviousness is established with respect to Claim 28 or Claim 30.

For the above reasons Applicant requests reconsideration and withdrawal of the rejections under 35 U.S.C. § 103.

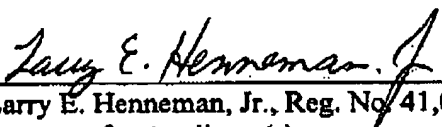
New Claims

New Claims 31-45 are added. Claims 31-38 depend either directly or indirectly from Claim 1, and are therefore distinguished from the cited prior art for at least the reasons given above with respect to amended Claim 1. Similarly, Claims 39-46 depend either directly or indirectly from Claim 22, and are therefore distinguished from the cited prior art for at least the reasons given above with respect to amended Claim 22. No new matter is entered.

For the foregoing reasons, Applicant believes that Claims 1-12 and 22-46 are in condition for allowance. Should the Examiner undertake any action other than allowance of Claims 1-12 and 22-46, or if the Examiner has any questions or suggestions for expediting the prosecution of this application, the Examiner is requested to contact Applicant's attorney at (269) 279-8820.

Respectfully submitted,

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I hereby certify that this paper (along with any referred to as being attached or enclosed) is being transmitted via facsimile, on the date shown below, to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, at (703) 872-9302.

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